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subject: Showcasing Solar Technologies from San José Companies at the Tech Museum of Innovation

Background

In May 2007, the City of San José won a Solar America Showcase award from the US Department of Energy. This award offers technical assistance to help the City realize its ambitious solar technology deployment goals on large buildings and complexes mainly in the revitalized downtown area. In July 2007, a DOE Tiger Team — led by Cécile Warner of the National Renewable Energy Laboratory (NREL) — met with numerous city officials to discuss the City's solar plans in detail and visit the various sites under consideration for solar technology adoption.

This letter report focuses on one specific site that was noted in the original City of San José application — the Tech Museum of Innovation. This high-tech museum receives 400,000 visitors annually and hosts numerous high-tech investor gatherings. It is located in the heart of downtown San José just a five minute walk from the San José McEnry Convention Center and several hotels.

The City of San José Solar America Showcase application stated that the City wished to not only deploy solar technologies on a large-scale, but also fulfill its economic development goal of becoming “a hub for clean technology development.” Economic Development Officer Collin O'Mara emphasized this point in our July 2007 meeting expressing the desire that this Solar America Showcase effort provide “reason for companies to come to San Jose to create [solar]



Figure 1: The mango-colored polygons show roof space that could be dedicated to showcasing the latest solar products. The yellow polygon shows roof space on Parkside Hall where SunPower will be building a 169 kW PV array in the Spring 2008 for providing electricity to the Tech Museum.¹

technologies....”² After hearing this, our DOE Tiger Team suggested a specific way to utilize the Tech Museum of Innovation for realizing the inter-related goals of solar technology deployment and high-tech economic development.

The Big Idea

The Tech Museum of Innovation is “singularly focused on inspiring the innovator in everyone it reaches.”³ Given this mission, it is the ideal place to showcase the latest solar products

¹ “The Tech to Go Solar with Installation on Parkside Hall,”
<http://www.solarheadlines.com/?q=node/1260>

² City of San José Meeting with DOE Tiger Team, City Hall, 26 July 2007.

³ <http://www.thetech.org/info/>

developed by San Jose-based companies.⁴ While the showcased solar technologies could be potentially disruptive, such products would not have a track record of reliability, durability, or cost-competitiveness in the overall marketplace. By dedicating interior space as well as publicly accessible roof space (see mango-colored polygons in Figure 1 above) for local, innovative solar products, the Tech Museum would offer San José companies a unique showcase opportunity to interact with museum visitors, attract tech-savvy convention attendees, acquire invaluable market data, and connect with the high-tech investor community. The unique business opportunity to set up in the Tech Museum would also be an additional enticement for solar companies to re-locate in the City of San José.

The finite amount of roof and interior space would create an environment for San José companies to compete for the opportunity to showcase their new solar products. The Tech Museum could host a recurring competition to select winning solar vendors who would be awarded roof and exhibit space to display and operate their latest solar products. Selection of winning entries could be based on innovation, technical show, cost reduction, warranty terms, and O&M service. The winning vendors would install and maintain their solar exhibits at the Tech Museum and the recurring competition would refresh the exhibits periodically as well as attract innovators and spectators to the Tech.

Technical Details

To make this idea happen, there are a few key technical considerations:

- **Safety** — A solar technology showcase competition at the Tech Museum would attract technology innovators aggressively working to get their latest solar inventions out to the public and marketplace. To be considered for public use and display, the Tech Museum would have to set required codes and standards (e.g., UL-listing) that would need to be implemented for each showcase solar technology. The Tech Museum would need staff members or hired inspectors who could independently certify that a showcased solar product was indeed in compliance with codes and standards stipulated by the Tech Museum and the City of San José.
- **Technology Failure** — As taught in the Tech Museum, failure is an integral part of the innovative process. When showcased solar products experience significant performance degradation (e.g., a sudden, sharp drop in efficiency), reliability problems (e.g., mismatch), durability issues (e.g., delamination), or even aesthetic defects (e.g., discoloration), the Tech Museum should consider having a panel of independent, technical judges determine whether a specific technology failure

⁴ The Orange County Convention Center in Orlando Florida — another DOE Solar America Showcase winner — is planning to build a Family Learning Center there that will showcase 4-8 innovative solar PV systems for the public and convention attendees.

should trigger the removal of the showcased solar product. When this happens, interior and roof space would open up again for another local solar company to secure on a competitive basis.

- **Technology Success** — Getting the market to embrace a new, unproven technology is a Herculean task. This is especially true for new solar products where there is a consumer expectation of near flawless operation over a 20-25 year timeframe. The Tech Museum can actively participate in this challenge by continuously monitoring the operation of showcased solar products and displaying the output on-site and online in a way that would be easily digestible to the viewing public. In contrast with exhibits at solar conventions, prospective mainstream adopters of the showcase technology could track the independently acquired performance data over an extended period of time and then make an informed decision on whether to embrace the technology. If and when a showcased solar product achieved a technology breakthrough and became a “hit” in the marketplace, the exhibit could then migrate to a “Solar Hall of Fame” portion of the Tech Museum to make room for new, cutting edge solar products.

- **Spin-off Solar Events and Exhibits** — Any highly visible forum with a mix of competition and new technology will spawn a series of spin-off activities. A showcase of the latest solar products would likely attract educational, non-profit, and for-profit organizations pushing for greater solar technology adoption. Capitalizing on the audience drawn to the solar showcase exhibits, these organizations would likely focus on education, promotion, and marketing of solar technologies. These groups could play a positive role in a showcase exhibit answering visitor’s specific questions on how solar technology works and how to have it incorporated into their home or business. The Tech Museum needs to consider what role (if any) these organizations should play at their physical and Internet location.